

Titanium Ingot, Mill Products, and Castings



U.S. Department of Commerce
BUREAU OF THE CENSUS
INDUSTRY AND TRADE ADMINISTRATION

SUMMARY FOR 1985

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SUMMARY OF FINDINGS

The total production of titanium ingot for 1985 totaled 70.7 million pounds. This represented a 14-percent decrease from the 1984 figure of 82.6 million pounds. Consumption of titanium ingot decreased 10 percent from 81.7 million pounds in 1984 to 73.2 million pounds in 1985. Net shipments of titanium mill products decreased by 2 percent from 44.9 million pounds in

1984 to 43.8 million pounds in 1985. Castings shipments increased 56 percent to 833 thousand pounds in 1985 from 535 thousand pounds in 1984. The statistics in this publication are based on a survey of manufacturers and represent total U.S. shipment of titanium ingot mill products and castings. Estimates are included for companies whose reports were not received in time for tabulation. A more complete description of this survey appears on page 4.

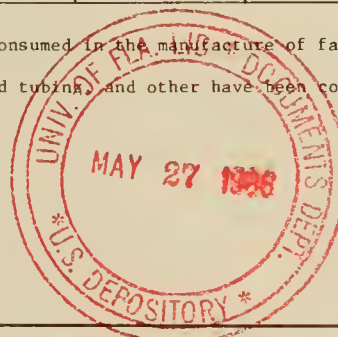
Table 1. NET SHIPMENTS OF TITANIUM MILL PRODUCTS: 1985 AND 1984

(Thousands of pounds)

Product description	Total	First quarter	Second quarter	Third quarter	Fourth quarter
1985					
Net shipments ¹	43,889	11,840	12,119	10,340	9,590
Sheet and strip,.....	(2)	(2)	(2)	(2)	(2)
Plate.....					
Forging and extrusion billet.....	24,097	5,854	6,971	5,824	5,448
Rod and bar.....	6,412	1,678	1,612	1,650	1,472
Fastener stock and wire.....	13,380	4,308	3,536	2,866	2,670
Extrusion.....					
Pipe and tubing.....					
Other.....					
1984					
Net shipments ¹	45,429	10,948	10,947	11,420	12,114
Sheet and strip.....	(2)	(2)	(2)	(2)	(2)
Plate.....					
Forging and extrusion billet.....	23,809	6,218	5,512	5,853	6,226
Rod and bar.....	6,104	1,256	1,681	1,564	1,603
Fastener stock and wire.....	15,516	3,474	3,754	4,003	4,285
Extrusion.....					
Pipe and tubing.....					
Other.....					

¹ Net shipments is the sum of mill product shipments plus mill products consumed in the manufacture of fabricated products, less total receipts.

² Data for sheet and strip, plate, extrusion (other than tubing), pipe and tubing, and other have been combined to avoid disclosing individual company data.



Address inquiries concerning these figures to U.S. Department of Commerce, Industry and Trade Administration, Office of Basic Industries, Washington, D.C. 20230, or to the Bureau of the Census, Industry Division, Washington, D.C. 20233, or call Mary Ellickson, (301) 763-5440. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Table 2. TITANIUM INGOT, MILL PRODUCTS, AND CASTINGS: 1985 AND 1984

(Thousands of pounds)

Quarter and year	Ingot					Mill products			Castings	
	Pro- duction	Con- sumption	Ship- ments	Receipts	Ending inventories	Pro- duction	Receipts	Net ship- ments ¹	Pro- duction	Ship- ments
1985										
Total ²	70,773	73,151	14,793	16,396	(X)	49,777	8,052	43,889	2,201	833
Fourth quarter.....	15,101	15,976	3,306	3,674	8,525	12,337	2,410	9,590	587	238
Third quarter.....	16,368	16,966	2,690	3,427	8,618	10,382	1,857	10,340	585	214
Second quarter.....	18,107	18,706	4,026	4,524	8,644	13,668	1,711	12,119	480	187
First quarter.....	21,197	21,503	4,771	4,771	8,790	13,390	2,074	11,840	549	194
1984										
Total ²	79,929	79,695	15,537	17,618	(X)	49,502	6,885	45,370	1,684	532
Fourth quarter.....	20,885	21,120	2,712	3,890	9,050	14,072	2,238	12,114	464	149
Third quarter.....	21,257	20,973	4,698	3,576	7,983	12,216	1,655	11,420	450	142
Second quarter.....	19,549	18,630	4,512	4,653	8,907	12,112	1,820	10,947	384	126
First quarter.....	18,238	18,972	3,615	5,499	7,931	11,102	1,172	10,889	386	115

(X) Not applicable.

¹See footnote 1, table 1.²Inventories for the year are those shown for the fourth quarter.

Table 3. NET SHIPMENTS, EXPORTS, IMPORTS, AND APPARENT CONSUMPTION OF TITANIUM INGOT, MILL PRODUCTS, AND CASTINGS: 1985 AND 1984

(Quantity in thousands of pounds)						
Month	Manufacturers' net shipments	Exports of domestic merchandise ^{1 2}	Percent exports to manufacturers' net shipments	Imports for consumption ^{1 3}	Apparent consumption ⁴	Percent imports to apparent consumption
1985						
Total.....	62,819	6,789	11	3,227	59,257	5
Titanium ingot and forging and extrusion billet ⁵	41,066	4,505	11	358	36,919	1
Titanium mill products.....	21,753	2,284	10	2,869	22,338	13
FOURTH QUARTER						
Total.....	13,439	1,897	14	710	12,252	6
Titanium ingot and forging and extrusion billet ⁵	9,298	942	10	74	8,430	1
Titanium mill products.....	4,141	955	23	636	3,822	17
THIRD QUARTER						
Total.....	15,536	1,655	11	1,003	14,884	7
Titanium ingot and forging and extrusion billet ⁵	9,058	1,096	12	82	8,044	1
Titanium mill products.....	6,478	559	9	921	6,840	14
SECOND QUARTER						
Total.....	16,689	1,457	9	881	16,113	5
Titanium ingot and forging and extrusion billet ⁵	11,541	1,075	9	101	10,567	1
Titanium mill products.....	5,148	382	7	780	5,546	14
FIRST QUARTER						
Total.....	17,155	1,780	10	633	16,008	4
Titanium ingot and forging and extrusion billet ⁵	11,169	1,392	12	101	9,878	1
Titanium mill products.....	5,986	388	6	532	6,130	9
1984						
Total.....	60,966	5,696	9	2,001	57,271	3
Titanium ingot and forging and extrusion billet ⁵	39,346	4,141	11	351	35,556	1
Titanium mill products.....	21,620	1,555	7	1,650	21,715	8
FOURTH QUARTER						
Total.....	14,826	1,482	10	373	13,717	3
Titanium ingot and forging and extrusion billet ⁵	8,938	1,073	12	106	7,971	1
Titanium mill products.....	5,888	409	7	267	5,746	5
THIRD QUARTER						
Total.....	16,118	1,162	7	655	15,611	4
Titanium ingot and forging and extrusion billet ⁵	10,551	816	8	84	9,819	9
Titanium mill products.....	5,567	346	6	571	5,792	10
SECOND QUARTER						
Total.....	15,459	1,763	11	460	14,156	3
Titanium ingot and forging and extrusion billet ⁵	10,024	1,259	13	64	8,829	1
Titanium mill products.....	5,435	504	9	396	5,327	7
FIRST QUARTER						
Total.....	14,563	1,289	9	513	13,787	4
Titanium ingot and forging and extrusion billet ⁵	9,833	993	10	97	8,937	1
Titanium mill products.....	4,730	296	6	416	4,850	9

¹For comparison of Standard Industrial Classification (SIC) codes, Schedule B export numbers, and TSUSA import numbers, see table 4.

²Source: Bureau of the Census report PT-410, U.S. Exports--Schedule E--Commodity by Country.

³Source: Bureau of the Census report IM 145-X, U.S. Imports for Consumption and General Imports.

⁴Apparent consumption is derived by subtracting exports from the total of net shipments plus imports.

⁵Comparability of output, export, and import classifications for ingot and billet assume that blown, sheet bar, and slab are reported as ingot or billet in the output codes. Figures for imports of ingot and billet also include powder, crystal, and similar forms which are excluded from the output and export codes.

Table 4. COMPARISON OF STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODES, SCHEDULE B EXPORT NUMBERS, AND TSUSA IMPORT NUMBERS

Product code	Product description	Export number	Product description	Import number	Product description
33562 74 ¹	Titanium ingot and forging and extrusion billet	630.6520	Titanium ingots, billets blooms, sheet bars, and slabs	² 629.1460	Unwrought titanium metal, except sponge
33562 79	Titanium mill products	630.6570	Wrought titanium metal including alloys (excludes sponge ingots, billets blooms, sheet bars, slab, waste and scrap)	629.2000	Wrought titanium metal, including alloys (excludes waste, scrap, and unwrought metal)

¹Comparability of output, export, and import classification for ingot and billet assume that bloom, sheet bar, and slab are reported as ingot or billet in the output numbers.

²Figures for imports of ingot and billet also include powder crystals and similar primary forms which are excluded from the output and export numbers.

DESCRIPTION OF SURVEY

Scope of Survey. This survey covers companies engaged in producing titanium ingot, mill products, and castings.

Survey Methodology. The statistics in this publication are collected by mail on Bureau of the Census quarterly Form ITA991, Titanium Metal. The panel for this survey includes all known producers of titanium ingot, mill products, and castings, approximately 30 companies.

Survey Error. Figures for the current month include estimates for panel members for which reports were not received in time for tabulation. Such missing figures are "imputed" based on quarter-to-quarter movements shown by reporting firms. Imputation generally is limited to a maximum of 10 percent for any one data cell. Figures with imputation rates greater than 10 percent are footnoted.

The imputation rate is not an explicit indicator of the potential error in published figures due to nonresponse because the actual quarterly movements for nonrespondents may or may not closely agree with the imputed movements. The probable range of difference between the actual and imputed figures is not precisely known but is assumed to be small. The degree of uncertainty regarding the accuracy of the published data, however, increases as the percentage of imputation increases. Figures with imputation rates above 10 percent should be used with caution.

Revisions to Previous Period Data. Data may be revised as the result of corrected figures received from respondents or other corrections. Figures which have been revised by more than 5 percent from previously published figures are indicated by footnotes.

EXPLANATION OF TERMS

Gross Shipments of Mill Products. Represents mill shapes shipped between producers plus mill shapes consumed in the production of fabricated products such as forgings.

Net Shipments of Mill Products. Represents gross shipments less receipts. For detail categories, net shipments also includes consumption in the manufacture of other mill shapes.

Sheet and Strip. Flat roll mill products with thickness less than or equal to .187 inch.

Plate. Flat roll mill products with thickness exceeding .187 inch and greater than 10 inches wide.

Forging and Extrusion Billet. Rounds, squares, and rectangles with a cross-sectional area greater than or equal to 16 square inches and width less than 5 times thickness.

Rod and Bar. Rounds greater than ½ inch diameter and less than or equal to 4-½ inches in diameter. Squares with cross-sections less than 16 square inches. Rectangles with widths less than

or equal to 10 inches and thickness less than 3/16 and cross-sectional area less than 16 inches square.

Fastener Stock and Wire. Rounds with diameter less than or equal to ½ inch.

Extrusions (Other Than Tubing). Any product of any shape, except pipe and tubing, produced by forcing heated metal through a die.

Pipe and Tubing. All seamless and welded pipe and tubing.

Ingot. Includes direct casting of extrusion billet and other similar products.

Stocks. Equal to the end of the prior period plus production and receipts for the current period, minus consumption and shipments.

COMPARISON OF EXPORT, IMPORT, AND DOMESTIC OUTPUT DATA

The Standard Industrial Classification (SIC) system used for domestic output and the statistical export and import commodity classifications were developed independently. This results in considerable difficulty in comparing the three types of data for many commodity areas. The domestic output classification is based on type of industry; on the other hand, the export and import classification system is more materials oriented. Also, there are a substantial number of imported commodities which have no comparable domestic output classification. The relationships shown in this report should be considered only as approximations, since, in addition to the problems mentioned above, there are also the following problems affecting the comparability of the three sets of data.

Valuation. There are different methods of valuation for the three types of data:

- **Domestic Output.** Valued at the point of production. It includes the net sales price, f.o.b. plant, after discounts and allowances, exclusive of freight charges and excise taxes.
- **Exports.** Valued at the point of exportation. It includes the selling price, or cost if not sold, and inland freight, insurance and other charges to the export point.
Estimated producers' values of exports have also been developed. These values more closely approximate the values reported for domestic output because they exclude freight, insurance, and other charges applied from the producing plant to the export point.
- **Imports.** Valued at the first port of entry in the United States. It includes c.i.f. (cost, insurance, and freight), duty, and other charges to the import point.

Duplication in Quantity and Value of Output. Because producers' shipments of some commodities may be used as materials for incorporation into other commodities, combinations of data for such commodities may contain a certain amount of duplication. Thus, percentages of exports to output or imports to apparent consumption (output plus imports minus exports) at four-digit or broader levels may be understated. Where duplication is known to be substantial, the output data are appropriately noted in the table.

Low-Value Import and Export Transactions. Detailed commodity information is not included for individual export shipments valued at not more than \$1,000. Generally, detailed commodity information is not included for individual import shipments valued at more than \$1,000. For textiles and textile products, gloves, footwear, and miscellaneous rubber and plastics products, detailed commodity information is not included for individual import shipments valued at not more than \$250. This is believed to have only negligible effects on the statistics for the bulk of the commodities.

Manufacturers' Shipments, Not Specified by Kind. The value of manufacturers' shipments at the four-digit industry level often includes a small amount which is not distributed among the individual five-digit product classes. Export and import percentages at the more detailed levels might, therefore, be slightly overstated.

Time Lag Between Output and Exports. There will be a lag between the time a commodity is produced or shipped by the producer and the time it is actually exported, especially when intermediaries (wholesalers, exporters, etc.) are involved. Ordinarily, this type of discrepancy is insignificant in annual figures.

"Direct" vs "Total" Commodity Exports and Imports. Export and import data do not include materials which are incorporated into other more finished products and exported or imported in finished form. Thus, by showing only direct exports and imports, the relation of exports to output and imports to apparent consumption for intermediate products is considerably understated.

Used Commodities. With a few exceptions, used or rebuilt commodities are classified in the same import or export codes as is new merchandise. Percentages are thus overstated to the extent that used or rebuilt products are significant in trade.

Geographic Area of Coverage. Import and export data reflect the movement of merchandise into and out of U.S. foreign trade zones, the U.S. Virgin Islands, and the U.S. customs territory (includes the 50 States, the District of Columbia, and Puerto Rico).

HISTORICAL NOTE

Data on titanium metal have been collected by the Bureau of the Census since 1955. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library. A list of these

libraries may be obtained from the Bureau of the Census regional offices:

Office	Telephone
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RELATED REPORTS

A monthly Current Industrial Report also is published in this series. The Bureau of the Census publishes the following related reports:

Series	Frequency	Title
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M33-2	Monthly	<i>Aluminum Ingot and Mill Products</i>
M33A	Monthly	<i>Iron and Steel Castings</i>
M33E	Monthly	<i>Nonferrous Castings</i>
MA33B	Annually	<i>Steel Mill Products</i>
MA33G	Annually	<i>Magnesium Mill Products</i>
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M3-1	Monthly	<i>Manufacturers' Shipments, Inventories, and Orders</i>
(AS)	Annually	<i>Annual Survey of Manufactures (ASM)</i>
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<i>Foreign Trade Reports</i>		
EM 546	Monthly	<i>U.S. Exports—Schedule B—Commodity by Country</i>
IM 145-X	Monthly	<i>U.S. Imports for Consumption and General Imports</i>

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone Number
Current Industrial Report ITA991	Mary Ellickson	(301) 763-5440
Manufacturers' Shipments, Inventories, and Orders	Ruth Runyan	(301) 763-2502
Census/ASM	Dale Gordon	(301) 763-7304
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Subject Area	Contact	Phone Number
Foreign Trade publication	Joyce Ware	(301) 763-5140
International Trade Administration	James Manion	(202) 377-5157

ACKNOWLEDGMENTS

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A large, stylized illustration in the background of the page depicts various industrial scenes. At the top, a worker in a hard hat and safety glasses is shown in profile, looking towards the right. Below this, a large truck is visible, with the number '220' on its front. In the center, there's a complex of pipes, valves, and machinery. To the right, a worker is operating a machine with a large wheel. In the bottom right, a worker is standing next to a large stack of materials. The entire illustration is rendered in a simple, line-art style with some shading.

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